AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A <u>personal care product composition</u> comprising <u>a preservative</u> system, the preservative system comprising:

- (a) (i) a quaternary ammonium biocide having the formula $N^{+}R^{1}R^{2}R^{3}R^{4}X^{2}$,
 - (ii) a polymeric quaternary ammonium biocide, or
 - (iii) a mixture thereof; and
- (b) (i) a ketone acid or salt thereof,
 - (ii) an aromatic carboxylic acid or a salt thereof, or
 - (iii) a mixture thereof,

wherein R^1 and R^2 are independently unsubstituted or hydroxy substituted linear or branched C_1 - C_4 alkyl, - $(CH_2CH_2O)_mCH_2CH_2OH$, or - $(CH_2CHCH_3O)_mCH_2CHCH_3OH$ where m is 1 to 10; R^3 is a substituted or unsubstituted benzyl, ethylbenzyl, methylnaphthyl, or linear or branched C_1 - C_{22} alkyl; R^4 is - $R^5(O)_n(C_6H_4)R^6$ where n is θ -or 1; R^5 is a substituted or unsubstituted C_1 - C_8 alkyl or C_1 - C_8 alkoxyalkyl; R^6 is hydrogen or a substituted or unsubstituted, linear or branched C_1 - C_{12} alkyl; and X^- is an anoin anion.

- 2. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein R⁵ is -CH₂CH₂OCH₂CH₂-.
- 3. (Currently Amended) The <u>personal care product</u> eomposition of claim 2, wherein R^4 is [2-[2-(4-diisobutyl-phenoxy)ethoxy]ethyl].
- 4. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein the quaternary ammonium biocide is a salt of benzethonium.
- 5. (Currently Amended) The <u>personal care product composition</u> of claim 4, wherein the quaternary ammonium biocide is benzethonium chloride.

Claims 6-10 (canceled).

11. (Currently Amended) The <u>personal care product</u> emposition of claim 1, wherein X is chloride or carbonate.

- 12. (Currently Amended) The <u>personal care product composition</u> of claim 11, wherein X⁻ is chloride.
- 13. (Currently Amended) The <u>personal care product composition</u> of claim 11, wherein X⁻ is carbonate.
- 14. (Currently Amended) The <u>personal care product</u> eomposition of claim 1, wherein the ketone acid is a cyclic ketone acid or a salt thereof.
- 15. (Currently Amended) The <u>personal care product</u> composition of claim 14, wherein the cyclic ketone acid has the formula

wherein R^7 , R^8 , and R^9 are independently C_1 - C_{10} alkyl, C_1 - C_{10} alkenyl, C_1 - C_{10} alkenyl, aryl, aryl substituted with halogen, or $(C_1$ - C_{10} alkyl)aryl.

- 16. (Currently Amended) The <u>personal care product</u> eomposition of claim 15, wherein R^7 , R^8 , and R^9 are independently C_1 - C_4 alkyl; or R^7 and R^8 form a 5-12 member ring.
- 17. (Currently Amended) The <u>personal care product</u> composition of claim 15, wherein the cyclic ketone acid has the formula

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- 18. (Currently Amended) The <u>personal care product composition</u> of claim 14, wherein the ketone acid is dehydroacetic acid or a salt thereof.
- 19. (Currently Amended) The <u>personal care product</u> eomposition of claim 1, wherein the ketone acid is sodium dehydroacetate.
- 20. (Currently Amended) The <u>personal care product</u> eomposition of claim 1, wherein the ketone acid is encapsulated.
- 21. (Currently Amended) The <u>personal care product composition</u> of claim 18, wherein the dehydroacetic acid or salt thereof is encapsulated in cyclodextrin.

22. (Currently Amended) The <u>personal care product</u> eomposition of claim 1, wherein the quaternary ammonium biocide is benzethonium chloride and the ketone acid is dehydroacetic acid or a salt thereof.

Claim 23 (canceled).

- 24. (Currently Amended) The <u>personal care product eomposition</u> of claim 482, wherein the aromatic carboxylic acid is benzoic acid, derivative thereof, or salt thereof.
- 25. (Currently Amended) The <u>personal care product</u> composition of claim 482, wherein the aromatic carboxylic acid has the formula

wherein R^{10} and R^{11} are independently H, -OH, or -OC(O)CH₃; and R^{12} is H, Na, K, Ca, or Mg.

- 26. (Currently Amended) The <u>personal care product composition</u> of claim 182, wherein the aromatic carboxylic acid is a hydroxy benzoic acid, derivative thereof, or salt thereof.
- 27. (Currently Amended) The <u>personal care product composition</u> of claim 26, wherein the hydroxy benzoic acid is salicylic acid or a salt thereof.
- 28. (Currently Amended) The <u>personal care product composition</u> of claim 27, wherein the salt of salicylic acid is sodium salicylate.

29. (Currently Amended) The <u>personal care product composition</u> of claim 182, wherein the quaternary ammonium biocide is benzethonium chloride and the aromatic carboxylic acid is sodium salicylate.

Claim 30 (canceled).

- 31. (Currently Amended) The <u>personal care product composition</u> of claim 1, further comprising a solvent.
- 32. (Currently Amended) The <u>personal care product eomposition</u> of claim 31, wherein the solvent is water, an alcohol, a glycol, an ester, an ether, a polyether or any combination of any of the foregoing.
- 33. (Currently Amended) The <u>personal care product</u> composition of claim 1, wherein the composition comprises a biocidally effective amount of the quaternary ammonium biocide.
- 34. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein the composition comprises a fungicidally effective amount of the quaternary ammonium biocide.
- 35. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein the weight ratio of the ketone acid to the quaternary ammonium biocide ranges from about 0.00056:1 to about 1990:1.
- 36. (Currently Amended) The <u>personal care product</u> composition of claim 35, wherein the weight ratio of the ketone acid to the quaternary ammonium biocide ranges from about 0.0056:1 to about 1400:1.
- 37. (Currently Amended) The <u>personal care product composition</u> of claim 1, wherein said composition comprises from about 0.00005 to about 0.5% by weight of ketone acid and from about 0.00005 to about 0.45% by weight of

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quaternary ammonium biocide, based upon 100% weight of total composition.

- 38. (Currently Amended) The <u>personal care product composition</u> of claim 37, wherein said composition comprises from about 0.0005 to about 0.35% by weight of ketone acid and from about 0.0005 to about 0.2% by weight of quaternary ammonium biocide, based upon 100% weight of total composition.
- 39. (Currently Amended) The <u>personal care product composition</u> of claim 182, wherein the weight ratio of the aromatic carboxylic acid to the quaternary ammonium biocide ranges from about 0.00056:1 to about 1990:1.
- 40. (Currently Amended) The <u>personal care product composition</u> of claim 39, wherein the weight ratio of the aromatic carboxylic acid to the quaternary ammonium biocide ranges from about 0.0056:1 to about 1400:1.
- 41. (Currently Amended) The <u>personal care product</u> composition of claim 182, wherein said composition comprises from about 0.00005 to about 0.5% by weight of aromatic carboxylic acid and from about 0.00005 to about 0.45% by weight of quaternary ammonium biocide, based upon 100% weight of total composition.
- 42. (Currently Amended) The <u>personal care product composition</u> of claim 41, wherein said composition comprises from about 0.0005 to about 0.35% by weight of aromatic carboxylic acid and from about 0.0005 to about 0.2% by weight of quaternary ammonium biocide, based upon 100% weight of total composition.
- 43. (Currently Amended) An antimicrobial composition A personal care product comprising a preservative system, the preservative system comprising a synergistic mixture of:

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- (a) dehydroacetic acid or a salt thereof; and
- (b) benzethonium chloride.

Claims 44-45. (Canceled)

- 46. (Currently Amended) A preservative <u>system formulation</u> comprising a synergistic mixture of:
 - (a) dehydroacetic acid or a salt thereof;
 - (b) a benzethonium salt; and
 - (c) salicylic acid or a salt thereof.
- 47. (Currently Amended) A preservative formulation comprising a synergistic mixture of:
 - (a) dehydroacetic acid or a salt thereof;
 - (b) a benzethonium salt;
 - (c) salicylic acid or a salt thereof[[.]];
 - (d) benzoic acid or a salt thereof;
 - (e) phenoxyethanol; and
 - (f) benzyl alcohol.
- 48. (Original) The preservative formulation of claim 47 comprising:
 - (a) from about 5 to about 40% by weight of dehydroacetic acid;
- (b) from about 1 to about 20% by weight of benzethonium chloride;
 - (c) from about 2.5 to about 20% by weight of salicylic acid;
 - (d) from about 2.5 to about 20% by weight of benzoic acid;
 - (e) from about 20 to about 50% by weight of phenoxyethanol; and
- (f) from about 5 to about 50% by weight of benzyl alcohol, based upon 100% total weight of preservative formulation.

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49. (Original) The preservative formulation of claim 48 comprising:

- (a) about 10% by weight of dehydroacetic acid;
- (b) about 5% by weight of benzethonium chloride;
- (c) about 10% by weight of salicylic acid;
- (d) about 10% by weight of benzoic acid;
- (e) about 35% by weight of phenoxyethanol; and
- (f) about 30% by weight of benzyl alcohol,

based upon 100% total weight of preservative formulation.

- 50. (Original) A composition comprising from about 0.01 to about 2% by weight of the preservative composition of claim 48.
- 51. (Currently Amended) A <u>personal care product comprising a preservative system formulation, the preservative system comprising a synergistic mixture of:</u>
 - (a) a benzethonium salt; and
 - (b) at least one of
 - (i) —dehydroacetic acid or a salt thereof, and
 - (ii) -salicylic-acid or a salt thereof.
- 52. (New) The personal care product of claim 51, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 53. (New) The personal care product of claim 52, wherein the personal care product is a shampoo.
- 54. (New) The personal care product of claim 52, wherein the personal care product is a conditioner.
- 55. (New) The personal care product of claim 52, wherein the personal care product is a soap.

- 56. (New) The personal care product of claim 51, comprising an anionic formulation.
- 57. (New) The personal care product of claim 1, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 58. (New) The personal care product of claim 57, wherein the personal care product is a shampoo.
- 59. (New) The personal care product of claim 57, wherein the personal care product is a conditioner.
- 60. (New) The personal care product of claim 57, wherein the personal care product is a soap.
- 61. (New) The personal care product of claim 1, comprising an anionic formulation.
- 62. (New) The personal care product of claim 43, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 63. (New) The antimicrobial composition of claim 62, wherein the personal care product is a shampoo.
- 64. (New) The antimicrobial composition of claim 62, wherein the personal care product is a conditioner.
- 65. (New) The antimicrobial composition of claim 62, wherein the personal care product is a soap.
- 66. (New) The antimicrobial composition of claim 43, wherein the personal care product comprises an anionic formulation.

- 67. (New) The personal care product of claim 44, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 68. (New) The personal care product of claim 67, wherein the personal care product is a shampoo.
- 69. (New) The personal care product of claim 67, wherein the personal care product is a conditioner.
- 70. (New) The personal care product of claim 67, wherein the personal care product is a shampoo.
- 71. (New) The personal care product of claim 44, comprising an anionic formulation.
- 72. (New) The method of claim 45, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.
- 73. (New) The method of claim 72, wherein the personal care product is a shampoo.
- 74. (New) The method of claim 72, wherein the personal care product is a conditioner.
- 75. (New) The method of claim 72, wherein the personal care product is a soap.
- 76. (New) The preservative system of claim 46, wherein the preservative system is incorporated into a personal care product.
- 77. (New) The preservative system of claim 76, wherein the personal care product is a shampoo, conditioner, cream, lotion, cosmetic, or soap.

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78. (New) The preservative system of claim 77, wherein the personal care

product is a shampoo.

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79. (New) The preservative system of claim 77, wherein the personal care product is a conditioner.

80. (New) The preservative system of claim 77, wherein the personal care product is a soap.

81. (New) The preservative system of claim 76, wherein the personal care product comprises an anionic formulation.

82. (New) The personal care product of claim 1, further comprising an aromatic carboxylic acid or a salt thereof.